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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/091,938      | 03/05/2002  | Gurtej S. Sandhu     | MIO 0092 PA         | 7066             |

7590 07/01/2003

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EXAMINER

CHEN, BRET P

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1762     | 21           |

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |                   |
|------------------------------|-----------------|-------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)      |
|                              | 10/091,938      | SANDHU, GURTEJ S. |
| Examiner                     | Art Unit        |                   |
| B. Chen                      | 1762            |                   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 43-61 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-42 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                         | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)     | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

Claims 1-61 are pending in this application.

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-42, drawn to a method, classified in class 427, subclass 595.
- II. Claims 43-59, drawn to an apparatus, classified in class 118, subclass 715.
- III. Claims 60-61, drawn to a dispensing unit, classified in class 222, subclass 3.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the coating apparatus does not require the use of a dispensing unit. The subcombination has separate utility such as a nozzle.

Inventions I and (II,III) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process such as etching.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with William Jividen on March 12, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-42. Affirmation of this election must be made by applicant in replying to this Office action. Claims 43-61 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### *Specification*

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.**

Extensive mechanical and design details of apparatus should not be given.

It is noted that the claimed invention is directed to a method. The examiner suggests amending the abstract to reflect same.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is directed solely to a method. The examiner suggests amending the title to reflect same.

The disclosure is objected to because of the following informalities listed below. Appropriate correction is required.

The attempt to incorporate subject matter into this application by reference to 09/998073 on p.4 paragraph 9 of the specification is improper because **there is no recitation that the application is commonly assigned.** Reliance on a commonly assigned copending application by a different inventor may ordinarily be made for the purpose of completing the disclosure. See *In re Fried* , 329 F.2d 323, 141 USPQ 27, (CCPA 1964), and *General Electric Co. v. Brenner* , 407 F.2d 1258, 159 USPQ 335 (D.C. Cir 1968).

The examiner suggests amending to recite that the application is commonly assigned.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, the phrase “separating said precursor gas and said input gas” lacks antecedent basis.

In claim 9, the term “a few mean-free path lengths” is vague and indefinite.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-42 rejected under 35 U.S.C. 103(a) as being unpatentable over Sakuma et al. (5,270,247) in view of Marsh et al. (6,461,909)** Sakuma discloses a process for growing a crystalline compound semiconductor by atomic layer epitaxy on a heated substrate (col.2 lines

32-46) by supplying a first source gas, a second gas, and a third gas in an alternating fashion in a vacuum chamber (col.2 line 47 – col.3 line 24). A purge gas is utilized to prevent mixing of the precursors (col.3 lines 40-68). A manifold 5 is taught (col.6 lines 14-22). However, the reference fails to teach the use of electromagnetic radiation.

Marsh discloses a method of fabricating semiconductor devices using ALD (col.2 line 61 – col.3 line 5). The use of a laser can be utilized to enhance the deposition (col.6 lines 19-27). It would have been obvious to one skilled in the art to incorporate the laser as taught in Marsh in the process of Sakuma with the expectation of obtaining an enhanced deposition.

In claim 2, the applicant requires specific materials. It is noted that the references teach the use of many materials. One skilled in the art would know that different materials can be utilized depending on the desired final product and hence, would have been obvious.

The limitations of claims 3-42 have been addressed above.

Sneh et al. (6,503,330), Lee et al. (6,509,601), and Kaushik (6,448,192) have been provided for additional information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (703) 308-3809. The examiner can normally be reached on 10 hour days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

bc  
June 26, 2003

*[Signature]*  
BRET CHEN  
PRIMARY EXAMINER